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Date: 23 Sep 93 21:48:18 GMT  
From: ogicse!flop.ENG.R.EDU!prism.CS.EDU!kayd@network.ucsd.edu  
Subject: 10m Tube Linear \$125 OBO +S/H  
To: info-hams@ucsd.edu

I have a Model 321(Unknown brand) Tube linear that works on 10m. With 5 watts in it puts out 100w on low and 250w on high power. About 500w w/SSB on high power. Includes receiver amplifier circuit.

First \$125 OBO + S/H takes it if you are a licensed amateur operator!  
Only cashier's check or money order accepted.

Darrek Kay  
Kayd@Prism.cs.orst.edu  
(503)737-9410

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Date: Wed, 22 Sep 1993 16:26:34 GMT  
From: swrinde!ringer!lonestar.utsa.edu!blake@network.ucsd.edu  
Subject: 9 WEEKS!!!  
To: info-hams@ucsd.edu

In article <27nrkg\$oh8@lester.appstate.edu> RW884@CONRAD.APPSTATE.EDU (Watkins, Robert Shawn ) writes:

>For all those fretting over how long it is taking to get your license, I took  
>my test on July 17th and got my ticket yesterday, September 20th. That is  
>only 9 weeks! Obviously the FCC is getting caught up from the summer  
>swamp. So hang on, it may be here sooner than you think.

>  
> 73s de KE4FPZ

Well I took my exam on Sept. 2 so I should get it the first week of November.  
I still will get my ticket before I get up enough money to buy a rig, unfortunately!!!

73s de ??5???  
and all the n5???s are long-long gone, oh well!

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Date: Thu, 23 Sep 1993 09:41:31 GMT

From: sdd.hp.com!math.ohio-state.edu!howland.reston.ans.net!spool.mu.edu!  
darwin.sura.net!rsg1.er.usgs.gov!dgg.cr.usgs.gov!bodoh@network.ucsd.edu  
Subject: 9 WEEKS!!!  
To: info-hams@ucsd.edu

In article <27o7b6\$513@clarknet.clark.net>, jaevans@clarknet.clark.net (John A. Evans) writes:

|>  
|> Did anyone get any good figures for how much processing or time delay is  
|> attributable to the VECs?? Not to criticize them for doing what I  
|> consider to be a selfless and much needed service, but we should factor  
|> that into the variation in delays?? Besides, maybe the FCC reads internet and  
|> shuffles their in baskets based upon a gripe factor observed??? &^)  
|>  
|> cheers - I am learning while waiting for my ticket !! (code, of course)  
|>  
|> -----  
|> John A. Evans, Capt, USAF "My number one goal as a

I tested on Friday, June 11th, it arrived at the ARRL VEC on June 22nd and  
was FEDEXED to the FCC on June 29th...

--

+++++  
+ Tom Bodoh - Sr. systems software engineer, Hughes STX, N0YGT +  
+ USGS/EROS Data Center, Sioux Falls, SD, USA 57198 (605) 594-6830 +  
+ Internet; bodoh@dgg.cr.usgs.gov (152.61.192.66)  
+  
+ "Welcome back my friends to the show that never ends!" EL&P  
+  
+++++

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Date: 23 Sep 93 19:47:49 GMT  
From: news-mail-gateway@ucsd.edu  
Subject: ALERT: Big Bear Solar Observatory BEARALERT - 23 Sep 93  
To: info-hams@ucsd.edu

A strong EFR is growing at E16,2 S7,2. It has mixed polarity and splendid  
AFS. We would hope that those solar observatories that actually make  
observations could obtain data during the period 00-16 hrs UT AND  
COLLABORATE WITH US ON A STUDY. A DOPPLER SUBTRACTED IMAGE OF THE ARCHES  
IN H-ALPHA IS IN SUNCUB::ARCH:FTP.REGION, DSEP23A.FTS. W UP, B DOWN.

[STD SPECIAL NOTE: The EFR described above has shown a strong increase in  
low-magnitude subflare activity since approximately 13:00 UTC.]

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Date: 22 Sep 93 12:20:54 GMT  
From: dog.ee.lbl.gov!agate!howland.reston.ans.net!usc!hela.iti.org!widener!dsinc!  
netnews.upenn.edu!gopher.cs.uofs.edu!triangle.cs.uofs.edu!bill@network.ucsd.edu  
Subject: Antenna Covenants AGAIN (but now with a twist!)  
To: info-hams@ucsd.edu

In article <CDpto8.65q@bigtop.dr.att.com>, n2ic@longs.att.com (131A20000-  
LondonSM(DR2305)224) writes:

|>  
|> There are about 500,000 hams in the US now. When are we going to become  
|> a political force, capable of influencing these developers ?  
|>

Well, let's see. 200,000,000 people, 500,000 hams, I make that  
to be .25% How much of a political force are you looking for??

bill

--  
Bill Gunshannon | "There are no evil thoughts, Mr. Rearden" Francisco  
bill@cs.uofs.edu | said softly, "except one; the refusal to think."  
University of Scranton |  
Scranton, Pennsylvania | #include <std.disclaimer.h>

-----  
Date: 23 Sep 93 20:42:02 GMT  
From: concert!lester.appstate.edu!usenet@RUTGERS.EDU  
Subject: Antennas?  
To: info-hams@ucsd.edu

I need some help. I just recently got my license and am having difficulty  
transmitting very far from my house. I live in a valley in the mountains  
of North Carolina and my signal seems to just make the local repeater.  
What would be the best type of antenna to set up for a straight 2 meter  
HT? Inexpensive is preferred. Any help would be appreciated.

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Date: 22 Sep 1993 15:42:40 GMT  
From: dog.ee.lbl.gov!overload.lbl.gov!agate!howland.reston.ans.net!  
usenet.ins.cwru.edu!news.ecn.bgu.edu!anaxagoras.ils.nwu.edu!news.acns.nwu.edu!  
casbah.acns.nwu.edu!rdewan@network.ucsd.edu  
Subject: BKMULTY: looking for views/reviews  
To: info-hams@ucsd.edu

I am considering to buy a copy of BK-MULTY software from  
AC4IW for RTTY/AMTOR with my TU (HD3030, TU470 compatible).  
I am looking for any views/reviews of it or similar software.

Any comments, especially with its compatibility with Windows,  
will be greatly appreciated.

Rajiv  
aa9ch  
r-dewan@nwu.edu

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Date: Wed, 22 Sep 1993 15:50:09 GMT  
From: brunix!pstc3!md@uunet.uu.net  
Subject: Expensive application processes... (Was: Antenna Covenants)  
To: info-hams@ucsd.edu

In article <2287@arrl.org>, ehare@arrl.org (Ed Hare - KA1CV) writes:

|> Unfortunately, is is not the ARRL that decides the true meaning of  
|> "reasonable accomodation"; it is the courts.

Yes, this is very true. I guess I'm asking for a tall order: someone  
other than a \$150/hr. lawyer to say "here are the restrictions,  
do you think based upon previous PRB-1 cases they are reasonable?"  
and get a "yes" or a "no" answer (with appropriate legal disclaimers  
of course.) Since my posting yesterday, I've received a whole range of  
replies from "how draconian!" to "how simple".

Naturally, I just \*love\* the responses which include "just move".  
As if its that easy....

|> We ALL wish the FCC would spend more time on all sorts of enforcement,  
|> from part 97 to EMI susceptibility to things like this. Unfortunately,  
|> although the ARRL does manage to positively influence the FCC in many  
|> instances, we do not have control of the FCC (contrary to a few sly  
|> references to how they are in our back pocket,

Come on, Ed! We all know that the FCC's top officials are just  
ARRL puppets! I'd almost suspect that they are really cyborgs controlled  
by a low-band radio link....

|> And, there  
|> have been quite a few hams who HAVE taken cities to court and won  
|> big concessions (and legal fees) from the cities.

More important are the cases when amateurs loose. These have to be taken into consideration as well. Furthermore, many times precedents set at the state level are not applicable across state boundaries, so unless someone in my state has already fought a PRB-1 battle, often I would be without supporting precedent.

|> I wonder if you obtained the complete PRB-1 package, including court cases. These are many pages long, and cost us a lot to print and mail, so we do try to send them out only when there is a demonstrated need (as opposed to the "just curious" inquiries). I don't know if you have talked to John Hennessee at ARRL HQ, but he can arrange to get the full package sent to folks who are able to discuss why they need it.

No, I haven't asked for the package. I don't have the necessary resources to fight a legal battle - hell, my entire "budget" for this tower project was under \$3k. When I started to get into \$500 and \$1000 "engineering study" and "plot plans" (all of which, mind you, have to be certified by a state-licensed engineer/surveyor), the project simply became impossible to undertake. While I certainly would have no problems paying the appropriate \$100 building permit fee, proving the city with \$600 worth of "variance request" fees, thousands of dollars in engineering studies and plot plans, not to mention legal fees, all totaling several times what my tower itself would cost, it isn't worth it. As Ross says, "Its just that simple."

Although, here is an idea for the ARRL to chew on (although you might already do this...) How about as part of the PRB-1 information the ARRL could include a list of licensed amateurs who are also lawyers willing to handle PRB-1 cases? That way, those in touchy situations have a ready-source of people who are not only familiar with law, but also radio, and can represent the amateur better. Break the list down by state, for easy reference.

|> BTW -- was nice to meet in person in RI. I look forward to my next visit next year. !

Yes, it was definitely an experience worth repeating. Even if all you did get to do is listen to Tony and I pummel the ARRL all during dinner.... :-)

MD

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-- Michael P. Deignan  
-- Population Studies & Training Center

-- Brown University, Box 1916, Providence, RI 02912  
-- (401) 863-2668

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Date: 23 Sep 93 20:27:56 GMT  
From: news-mail-gateway@ucsd.edu  
Subject: HTs and Airlines Magazine Article  
To: info-hams@ucsd.edu

I am not sure if this tread has mentioned it but the October, 1993 issue of PC Computing which just appeared has an article titled Terror at 66 MHz on pg. 210. It has actual measurements of signals radiated by various devices and a table of what various airlines allow. despite the title it is a well-written and informative article.

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David L. Wilson                      INTERNET: dwilson@nvl.army.mil  
Office Phone: (703)704-1487        Amateur callsign: AC4IU  
Home Phone:    (703)898-1084

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Date: 22 Sep 1993 11:35:14 -0400  
From: dog.ee.lbl.gov!agate!spool.mu.edu!darwin.sura.net!news-feed-2.peachnet.edu!concert!borg.cs.unc.edu!not-for-mail@network.ucsd.edu  
Subject: New HF Rig  
To: info-hams@ucsd.edu

In article <1993Sep22.115647.21913@lmpsbbbs.comm.mot.com>  
burke\_br@adcae1.comm.mot.com writes:

>

>Gee fellows, I would recommend an American rig, the Ten-Tec Omni-VI, or the

>Paragon, soon, I hope, to be followed by the Paragon II....

>I know a couple of folks who own Paragons and think they are superior.

>

>Bruce, WB4YUC, e1 YUCC0. . .

>

>

Hear, hear !! I am one among many very happy OMNI VI owners. Ten Tec has an outstanding reputation for making good gear and providing good service. They suffer mostly from not buying enough glossy ad pages in the magazines (unlike Ken-com-sue) to be on everyone's most-wanted list.

Nick KD4CPL

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Date: Wed, 22 Sep 1993 17:10:08 GMT  
From: dog.ee.lbl.gov!agate!spool.mu.edu!sol.ctr.columbia.edu!hamblin.math.byu.edu!  
news.byu.edu!news.provo.novell.com!novell.com!JMESSING@network.ucsd.edu  
Subject: New Question pool sample tests  
To: info-hams@ucsd.edu

I have a friend who wanted to know if there were any sample tests available for the novice and technician classes which have the new question pools on them. Is there such an animal out there via FTP yet? Any help would be appreciated.

Thanks in advance,

Jeff  
KB7VRP

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Date: 23 Sep 93 10:11:17 EDT  
From: psinnntp!arrl.org@uunet.uu.net  
Subject: There goes the rest of 20M  
To: info-hams@ucsd.edu

In rec.radio.amateur.misc, kennykb@dssv01.crd.ge.com (Kevin B. Kenny) writes:

>In article <1993Sep14.200600.1095@ke4zv.atl.ga.us> Gary Coffman writes:

>|> That's not really what "self policing" means. The emphasis is on the  
>|> \*self\* part. What it means is you are supposed to police yourself in  
>|> your operation on the air. Some hams also "snitch" on others, or even  
>|> resort to vigilante action, but that's not what self policing means.

>The Service is also self-policing in the sense that it's  
>self-investigating, at least in an ideal world. Hams with  
>interference complaints, for instance, don't require a lot of  
>investigative support -- the interloper normally gets DF'ed and the  
>enforcers get handed all the information.

>But you're 100% right that 'self-policing' doesn't mean  
>'self-enforcing.' Wish Uncle Charlie realized that more often.

I think the FCC actually means that it considers the Amateur Radio service "self-regulating," rather than "self-policing." The difference is that Elmering, tradition, mutual training and assistance, maintaining operating standards, and peer pressure tend to keep the service under overall control. Other services, such as broadcasting, are essentially competitive, cutthroat ventures where many stations will try to pull



anything they can possibly get away with to gain an advantage (eg, without any regulatory supervision, forget public service programming, many technical standards, abuse of commercial content, etc).

The Commission is unable to commit resources or a large force of personnel to babysitting a bunch of amateurs, so it relies on the continuation of hams' record of pride and quality to generally minimize difficulties that affect the public and other amateurs.

Not to be picky or start a dispute over semantics, but the term "self-policing" connotes a quasi-"official" means of having amateurs exercise direct regulatory control over one another. I believe it's NOT the FCC's intent or desire to have hams acting as "band cops," largely because amateurs are unlikely to have sufficient training and objectivity to consider cases of "offenses" in a fair, reasonable manner. It's best that hams simply set the best example for others and politely offer friendly support and advice to maintain high technical and operating standards.

CUL es 73 de BB

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=====
Brian Battles, WS10      I Tel      203-666-1541, ext 222 I  "Radio amateurs
QST Features Editor     I Fax      203-665-7531      I  do it with high
ARRL HQ                 I Internet bbattles@arrl.org      I  frequency"
Newington, CT USA       I Amprnet  ws1o@ws1o.ampr.org [44.88.0.87]
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COMMENTS EXPRESSED HEREIN ARE MY OWN PERSONAL REMARKS AND ARE NOT TO BE  
CONSIDERED OFFICIAL ARRL VIEWS OR POLICY..

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Date: 23 Sep 93 18:37:20 GMT  
From: ogicse!emory!rsiatl!ke4zv!gary@network.ucsd.edu  
To: info-hams@ucsd.edu

References <161@ravel.ati.com>, <27nat7\$3gv@pscgate.progress.com>,  
<165@ravel.ati.com>  
Reply-To : gary@ke4zv.UUCP (Gary Coffman)  
Subject : Re: Battery recommendation wanted

In article <165@ravel.ati.com> duncan@ravel.ati.com (Jim Duncan) writes:

>  
>The DELCO batteries are of the maintenance free variety. These don't  
>seem to bubble and fizz with H2 gas like the conventional type.  
>Since the evolution of these gases results in water loss, it looks like  
>the maintenance free type battery somehow minimizes such activity.  
>Perhaps someone can address the differences between the maintenance  
>free and conventional battery in terms of elemental hydrogen

>outgassing.

The Delco Freedom batteries are advertised as maintenance free, but that's somewhat misleading depending on the service in which they are used. They solve the outgassing problem three ways. First they carry more water than normal batteries. This allows some loss without exposing the plates. Second they have a catalytic material inside that attempts to recombine the hydrogen and oxygen that boil off during heavy charging. And third the chemistry is slightly altered to minimize outgassing during charging. They aren't really sealed. It's possible to pop the cell cover off if necessary to add more water.

All of the above works pretty well in automotive service where normal discharges never exceed 20% of capacity. But if you use these batteries for deep discharge cycles, the tricks used are overwhelmed, their need for water increases, their thin calcium alloyed plates can warp, and their life is greatly shortened. It's better to use traditional wet cell deep discharge batteries instead.

Gary

--

Gary Coffman KE4ZV	"If 10% is good enough	gatech!wa4mei!ke4zv!gary
Destructive Testing Systems	for Jesus, it's good	uunet!rsiatl!ke4zv!gary
534 Shannon Way	enough for Uncle Sam."	emory!kd4nc!ke4zv!gary
Lawrenceville, GA 30244	-Ray Stevens	

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Date: 23 Sep 1993 23:14:06 GMT  
From: nothing.ucsd.edu!brian@network.ucsd.edu  
To: info-hams@ucsd.edu

References <27nat7\$3gv@pscgate.progress.com>, <165@ravel.ati.com>,  
<1993Sep23.183720.20667@ke4zv.atl.ga.us>  
Subject : Re: Battery recommendation wanted

[reposted from a year or so ago]

I've been doing some research on lead-acid batteries with an eye towards using them to provide power for our ham radio repeater site.

Our site is difficult to get to, and the commercial AC mains power goes away at times. Everything in the site runs off a nominal 12 volts DC. During idle periods, the equipment may only draw a few amperes, but most of the transmitters can draw up to 10 to 15 amps each. A maximum drain of 100 amps isn't out of the question, although it would probably be only for a few minutes at a time. Some systems (such as the digital communications equipment) key on and off quite regularly, with perhaps

as much as a 50% duty cycle, whilst others may not key for hours and then stay on for as long as an hour or two (voice repeaters during drivetime). We do not want there to be any interruption of power when the mains fail. We don't believe that most of the outages are of a duration that a generator will be necessary - a few hours is sufficient.

It is clear that a good solution to our problem is a bank of lead-acid batteries capable of supplying the peak current, floating across a supply that can recharge them and supply the standby and perhaps one or two transmitter's demand.

Ok, that's the problem. Here's what I've found.

Lead-Acid batteries commonly available today can be roughly grouped into three categories by construction and intended use:

1. Automotive starting
2. Traction
3. Stationary

Automotive starting batteries are formulated with thin pasted plates and are designed to supply high peak currents for brief periods of time whilst cranking an engine. They are not expected to be discharged to more than perhaps 75% of capacity, and are expected to be recharged immediately after discharge. If used in deep-discharge or float service they will not last long. (I.e., the capacity of the battery will diminish fairly quickly. While it will still act as a battery, it will not be able to supply its rated capacity soon after being placed in the wrong kind of service.)

Traction batteries are made with thick pasted plates and have very rugged separators between the plates to make the battery more immune to physical shock and vibration, and to reduce the chance of failure due to dendritic growth during recharging. These batteries are sold for use in electric forklifts, golf carts, marine trolling motors, and RV power. They are designed to be discharged nearly fully each day, and recharged each night. Because there is some tradeoff in battery life by using the pasted plate construction to keep the size and weight of the battery down, they are not used in applications where extremely long life is required. The commonly-available Deep Cycle Marine batteries are of this general type.

Stationary batteries are made with thick solid plates. They are designed to be used as standby power, supplying minimal power and kept in a state of nearly full charge until needed. They can take deep discharge. Because of the solid plate structure, they are bigger and heavier, but their lifetime is much longer. One source suggests that

10 years is not unusual. Some photovoltaic storage batteries (for solar-powered homes and such) are of this type.

The best battery for our application is the Stationary battery, but they are not commonly available. Much more readily obtained are the Marine/RV batteries, at about \$50 apiece.

Charging and discharging these batteries is a big question. I posted a query to the net and received about a dozen replies, most of which contradicted each other in one or more points. However, there is some consistency in the information available in our library, and I'll try to summarize it below.

Note that all the voltages given below are for batteries at working temperature - typically 80F (27C).

#### DISCHARGE:

Batteries are rated at an Amp-Hour capacity at a specific rate. For traction type batteries, this is typically a five hour rate, so a fully-charged 100 Ah traction battery in good condition can supply 20 amps for 5 hours before it is exhausted. Stationary batteries are usually rated at a 10 hour rate, and automotive (if rated in Ah at all) are given for a 20 hour rate. The discharge curve is NOT linear; if you double the current drain, you will get less than half the time. Similarly, if you halve the drain, you will get more than twice the time.

Each type of battery has a specified voltage at which it is considered completely discharged. If discharge continues below this voltage, the battery life may be considerably shortened, and repeated abuse of this kind can result in a battery which cannot practically be recharged. Each battery manufacturer specifies this voltage; in general, the final voltage for the three general types of batteries are

automotive	1.75 v per cell
traction	1.70
stationary	1.85

Thus a typical 12 volt marine battery with 6 cells should not be discharged below about 10.2 volts.

Another way of looking at it is that no cell should be discharged more than about .3 v below its full-charge rest voltage.

A typical cell will show the following voltages:

fully charged, open circuit, at rest with no	
charge/discharge for at least 12 hours	2.12 v/cell

As soon as load is applied (internal v-drop)	2.00
fully discharged, under load	1.70
fully discharged, open circuit	1.99
beginning of charging	2.10
70% to 80% charge (gassing begins)	2.35
full charge	2.65

#### CHARGING:

Liquid-electrolyte lead-acid batteries can be recharged at any rate that exceeds internal and surface discharge rates, and which does not cause excessive gassing (liberation of oxygen, hydrogen, and steam).

In non-float service, there are several simple chargers.

A single-rate (constant-current) charger limits its charge rate to about 7% of the Ah capacity of the battery; for a 100 Ah battery, it would charge at a rate of 7 amperes. Since the battery will start at about 2.1 v per cell, and finish at about 2.7 v per cell, the charger must be able to vary its voltage over this range. For a "12 volt" battery with 6 cells, the charger will need to supply between 12.6 and 16 volts over the duration of the charge. Charging is complete when the battery reaches 2.65 to 2.7 volts per cell.

A simple taper charger is a constant-voltage source set to 2.8 volts per cell with a series ballast (typically a resistor, but a choke or the internal resistance of the supply can be used) that limits the output current to 7%C when the battery is started charging at 2.1 v/cell. Again, charging is complete when 2.7v/cell is reached.

Trickle-charging of a fully-charged battery can be done to keep it charged. This is done by supplying .5 to 1 mA per Ah capacity. Trickle charging should be discontinued when it has continued for at least 24 hours and the battery has reached 2.25 v/cell. Typically, trickle chargers are set to run perhaps once a week. Because of their thin plate construction, automotive-type batteries will deteriorate if trickle-charged for more than perhaps six months.

An interesting research result was that using pulsating rectified AC or superimposing a small AC current on pure DC charging current increased battery life by up to 30%. Apparently the mechanism is that it reduces

gassing and leads to a more porous lower-resistance plate, and lessens the tendency to form dendrites during charging.

In float service, where the battery is in parallel with the mains supply, the supply voltage must be set to 2.15 to 2.20 v/cell. This will charge the battery, and avoids excessive gassing, but does not serve to "freshen" the cells - there is not enough gassing activity to move electrolyte around and clear the beginning of deposits from the surfaces of the plates. It is recommended that batteries in float service occasionally (perhaps once a month) be charged to 2.65 v/cell to freshen and equalize the charges. In large installations, this is done by switching parts of the battery banks out of service in rotation. In smaller systems that can tolerate the voltage excursion, it can be done by simply boosting the output of the mains supply.

Charging inevitably leads to some water loss due to gassing; 100Ah of a gassing charge (2.4v or more per cell) will yield about 1.2 oz of water loss. Hydrocap Corp [975 NW 95th St, Miami Fla, (305)696-2504] makes a replacement filler cap that contains a catalytic material that recondenses emitted steam, and recombines the hydrogen and oxygen gasses into pure water that then dribbles back into the cell, greatly reducing the required maintenance. With the available flame arrestor option, they sound ideal for unattended battery systems, and should greatly reduce the danger of fire and explosion from liberated hydrogen. They're about \$5-\$10 per cell.

To read further:

Smith, George. Storage Batteries, including operation, charging, maintenance, and repair. ISBN 273 43448 9, TK2941.S57 1968

Aguf, I.A. and M.A. Dasoyan. The Lead Accumulator (translated from the Russian by S Sathyanarayana). Calcutta, 1968

Longrigg, Paul. Rapid charging of lead-acid batteries for electric vehicle propulsion and solar energy storage. DOE/NTIS 1981.

Aren't libraries wonderful?  
- Brian

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End of Info-Hams Digest V93 #1131  
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